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ABSTRACT

An instructor's manual and student activity guide on building a model greenhouse and growing plants are provided in this set of prevocational education materials which focuses on the vocational area of agriculture (ornamental horticulture). (This set of materials is one of ninety-two prevocational education sets arranged around a cluster of seven vocational offerings: agriculture, home economics, distributive education, health occupations, world of work, trade and industry, and office occupations.) The instructor's guide is organized into the following elements: title of activity, duration of activity (five days main activity, eighteen days for follow-up activity), activity goals, ten instructional objectives, and activity implementation (description, materials needed, safety considerations, teacher preparation prior to class, during the class, follow-up activities, answer key to student check point activity 1 and masters for duplication [e.g., objective 1 check sheet, plans for model greenhouse]). The student activity guide provides step-by-step instructions (narrative and illustrations) for completing each instructional objective (e.g., identify tools and equipment, build model greenhouse, plant seeds in greenhouse). At the end of each set of instructions is a student check point (evaluation activity). Five occupational descriptions (e.g., plant propagator, horticultural worker) conclude the document. (JH)

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AGRICULTURE – ORNAMENTAL HORTICULTURE

BUILDING MODEL GREENHOUSE AND GROWING PLANTS

Kit No. 41

INSTRUCTOR'S MANUAL

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State Department of Education
Office of Vocational Education
Prevocational Education
Columbia, South Carolina 29201

In Cooperation With

Vocational Education Media Center
Clemson University
Clemson, South Carolina 29631

1978

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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TITLE OF ACTIVITY

Kit No. 41, Agriculture – Ornamental Horticulture – Building Model Greenhouse and Growing Plants

DURATION

Main Activity – 5 days
Follow-up Activity – 18 days (10 minutes per day)

INSTRUCTIONAL OBJECTIVES AND GOALS

First Day:

Introduction to the tools and equipment. Model greenhouse will be laid out and framed.

Second, Third, and Fourth Day:

The students will drill holes in frames C and D and insert sixteen-gauge wire. The students will also cover the model greenhouse with plastic in order for it to retain moisture. The students will place the model greenhouse on the mat.

Fifth Day:

The students will fill the frame of the greenhouse with soil (Jiffy Mix), soak it with water, and plant the seeds. After the seeds have been planted, the soil should be watered again.

After Planting:

The student will spend approximately 10 minutes per day on the project. The student should check for germination progress and water the soil thoroughly every third day. (Caution students to water ONLY every third day.) Approximately ten days later or when the plants have developed three leaves, one class period will be spent transplanting the plants from the greenhouse to pots.

VOCATIONAL CLUSTERS

Agriculture

ACTIVITY IMPLEMENTATION

A. Description

During this activity, the students will be introduced to the model greenhouse, growing media, and common potting and propagation practices. By following step-by-step directions given in the Student Learning Activity Guide, students will be able to build a model greenhouse, prepare the soil for planting, and plant 15 seeds in their greenhouses, use heat for germination and control growth temperature of greenhouse, and transplant plants properly. The lesson will be reinforced by permitting the students to carry home their plants.

B. Safety

Be sure not to drive nails through where they will tear plastic or hands when handling greenhouse.

Check hammer head to be sure it is tight on handle.

Don't allow propagation mats to lie in water.

Be careful not to let sharp ends on wire puncture skin when inserting in frame.

C. Materials Required

Audio Visual Equipment
None

Technical Equipment
10 hand drills
5 carpenter's squares
10 try squares
5 crosscut saws
5 tinner's snips
25 metal rulers
3 propagation mats
3 thermostatic controls

Expendable Materials
13 yards (11.88 m) of plastic
13 studs (2" x 4") (5.08 cm x 10.16 cm)
1 sheet masonite, plywood pressed board (4' x 8' – 1.22 m x 2.44 m)
1 roll 16-gauge wire
1 package of plastic cups
10 drill bits (1/16")
25 lbs. Jiffy Mix soil (11.34 kg)
Assortment of seeds
Coleus – Carefree Bronze
1 roll masking tape

Carefree Mixture
Scarlet Dragon
Eggplant
Bell peppers
Hot peppers
Tomatoes

D. Preparation Prior To Class

Check to make sure all needed items are present and a sufficient number of each item needed for the number of students you anticipate to participate is available.

Read over the activity and be aware of the areas where the special safety rules should be applied.

E. During Class Session

The instructor should stress the point that the activity is to be done in sequence.

Students should turn to page one of the programmed text and read the introduction, goals and objectives. Upon completion, the students should read each step in the programmed text carefully. Check with each student after he/she has completed the first eight to ten steps to make sure he/she understands how the programmed text works. Let students work at a steady pace – not too fast and not too slow. Be sure that all safety rules are followed and allow no playing or clowning around.

F. Follow-up Activities

1. Have students fill out VIEW Fact Sheets.
2. Ask County Agent to speak to your class about greenhouse operations.
3. If possible, schedule a field trip to a professional greenhouse operation.

MASTERS FOR DUPLICATION

VIEW Fact Sheet
Objective 1 Check Sheet
Plans for Model Greenhouse

ANSWER KEY

Instructional Objective I

1. F
2. E
3. D
4. B
5. G
6. A
7. C
8. H

VIEW FACT SHEET

NAME _____ CLASS _____ OCCUPATION _____

A. List the advantages (good points) of this occupation (job).

B. List the disadvantages (bad points) of this occupation (job).

C. List three things you should know to do this occupation (job).
1.
2.
3.

D. What type of education should you get to be prepared (do) for this occupation (job)?

E. What courses must you take to go into this occupation (job)?

F. What do you think your future in this occupation (job) will be?

G. What wage can you expect in this occupation (job)?

H. What are the working hours of this occupation (job)?

I. To learn more about this occupation (job), write to:

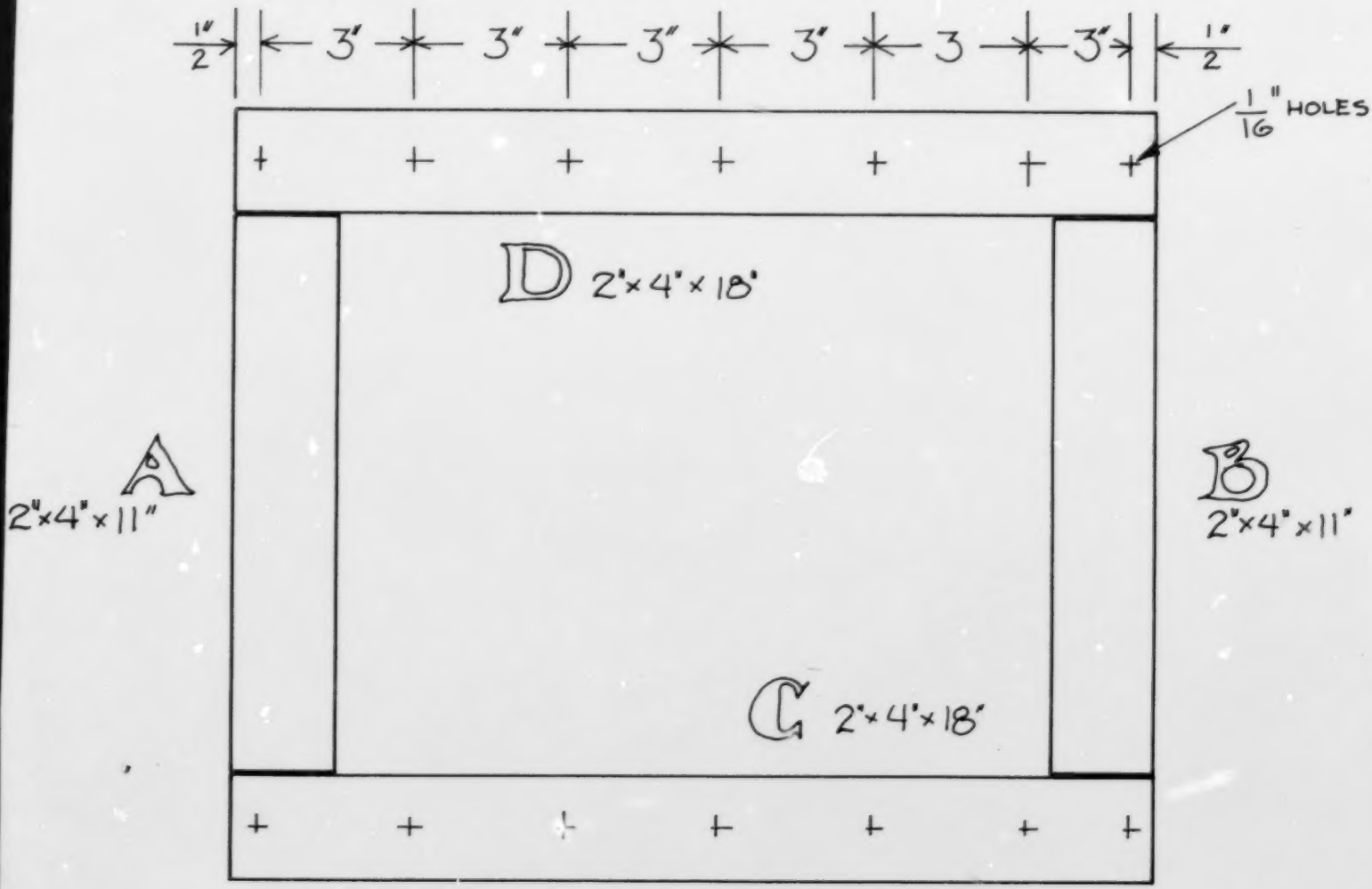
J. Using a scale of 1 to 5, circle the number that measures your interest in this occupation (job) as a possible career.

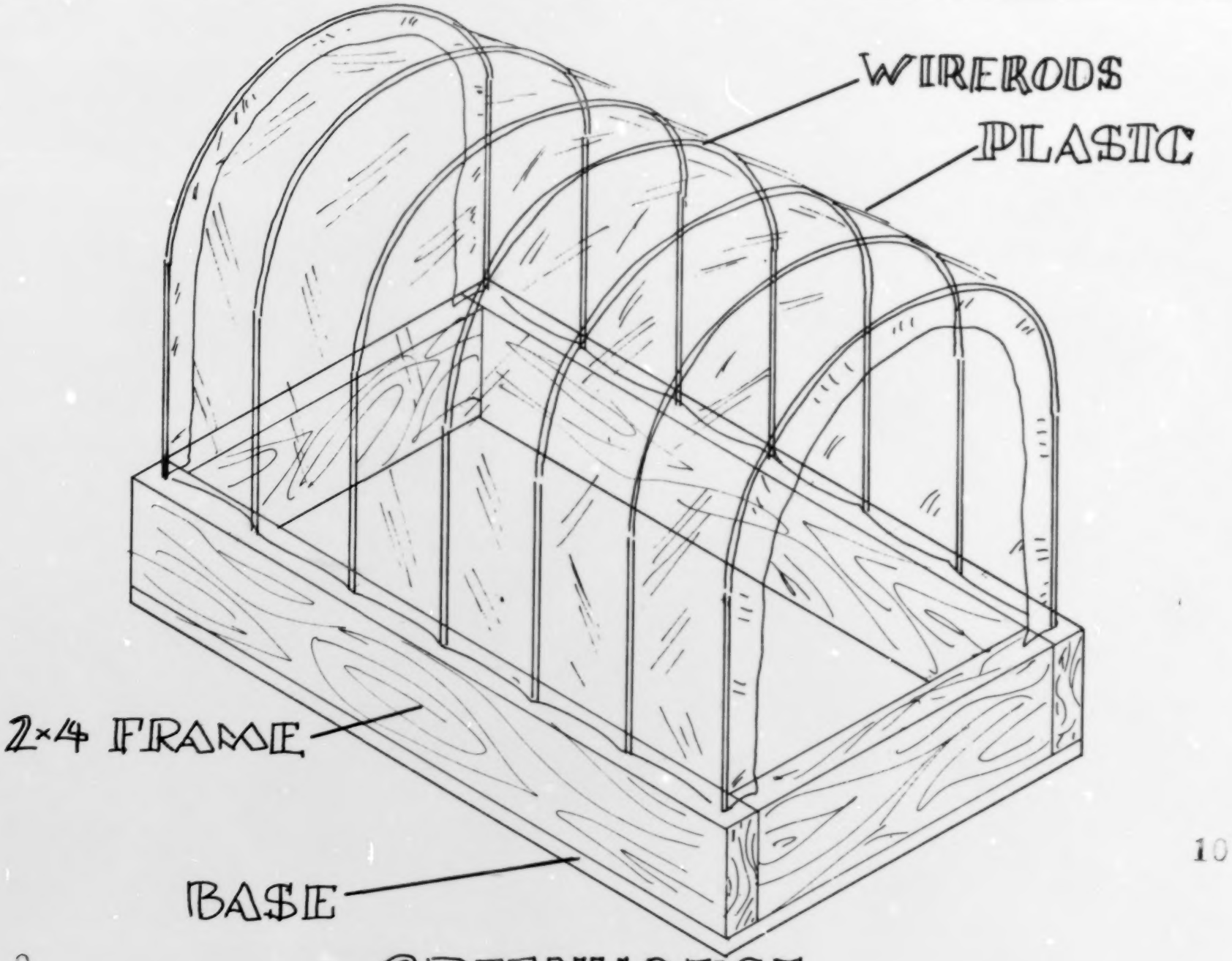
I don't like it. 1 2 3 4 5 I like it.

INSTRUCTIONAL OBJECTIVE I CHECK SHEET

1. Hand drill _____
2. Carpenter's square _____
3. Trysquare _____
4. Crosscut saw _____
5. Tinner's snips _____
6. Metal ruler _____
7. Propagation mat _____
8. Thermostatic control _____

PLANS FOR MODEL GREENHOUSE





GREENHOUSE

AGRICULTURE – ORNAMENTAL HORTICULTURE

BUILDING MODEL GREENHOUSE AND GROWING PLANTS

Kit No. 41

STUDENT
LEARNING ACTIVITY GUIDE

Prepared by

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BUILDING MODEL GREENHOUSE AND GROWING PLANTS

INTRODUCTION

In the following programmed text, the student will be instructed in the basic principles of how a greenhouse functions and use of a few basic hand tools in the construction of a model greenhouse. The follow-up activity will be to promote growth of designated plants covered in the text.

GOALS

The student will learn how to use heat for germination.

The student will learn how and when to water plants.

The student will learn how to apply fertilizer.

The student will learn how and when to provide ventilation in the model greenhouse.

The student will learn how and when to transplant plants.

The student will perform a self-test at the end of chosen sections.

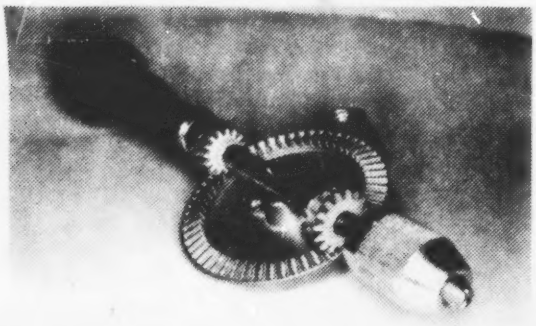
The student will end instruction with ten (10) or more live plants, this being the ultimate checkpoint.

DIRECTIONS

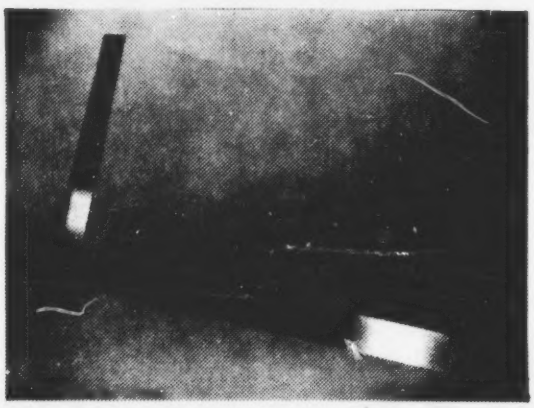
The student should begin with the programmed text which is a step-by-step process. In each section there will be an instructional objective (explains briefly what the student is to do), a step-by-step explanation of what is being done, and a checkpoint.

Instructional Objective 1

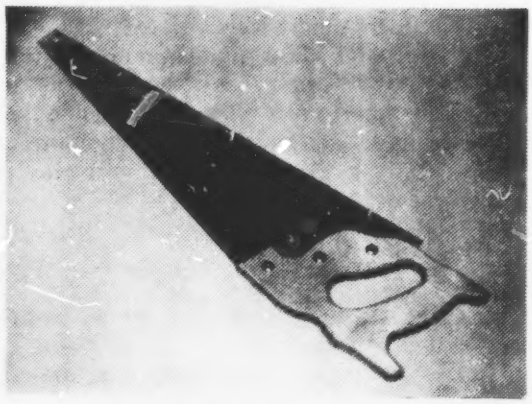
The student will identify the hand tools and equipment needed to complete this activity.



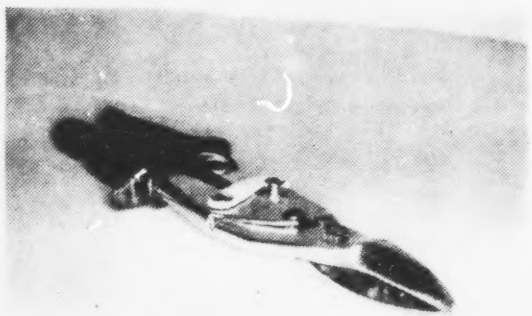
STEP 1 – This is a hand drill used to bore holes in wood and metal.



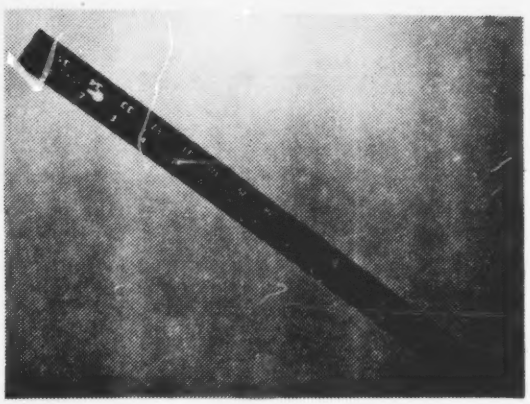
STEP 2 – This is a carpenter's square used to measure and mark large pieces of wood.



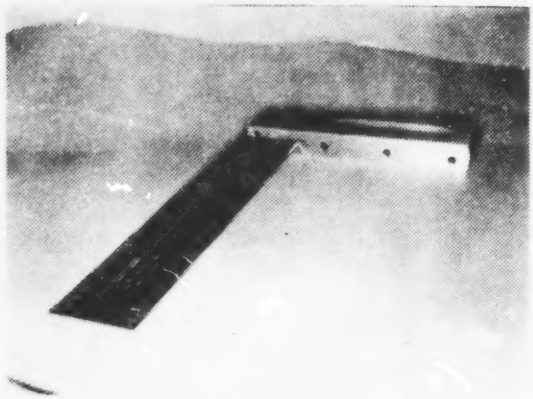
STEP 3 – This is a crosscut saw; it is used to cut lumber.



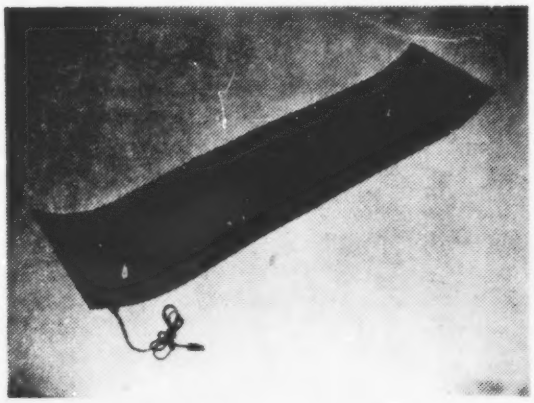
STEP 4 – This is tinner's snips, which look like large scissors. They cut metal.



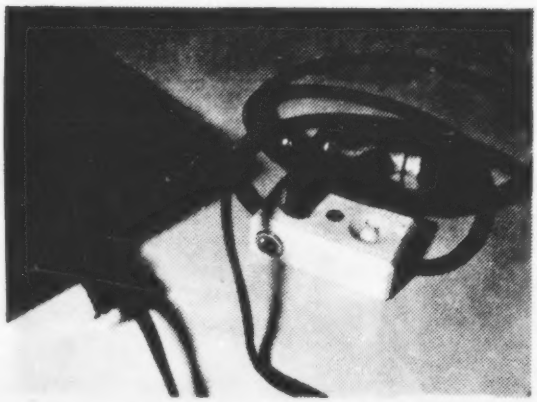
STEP 5 – This is a metal rule. It is used in measuring the size of an object.



STEP 6 — This is a try square. It is similar to the carpenter's square in operation, but it is smaller in size.



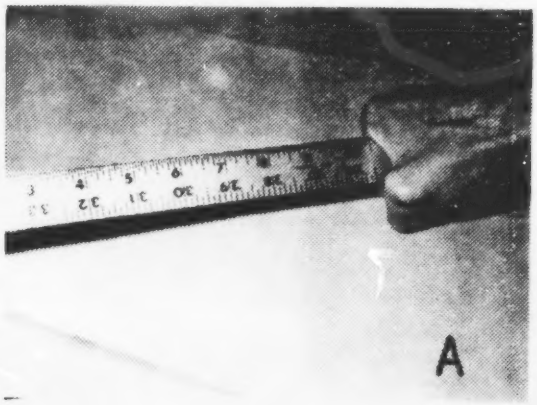
STEP 7 — This is a propagation mat used to heat soil and aid in faster plant growth.

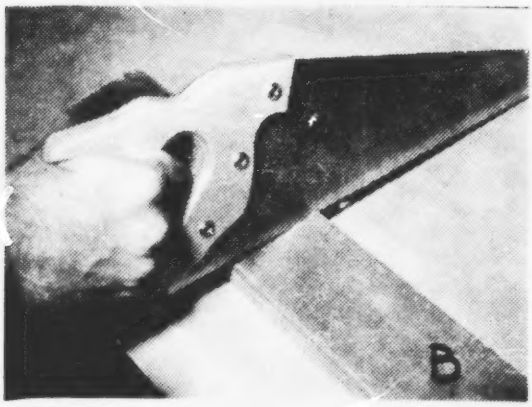


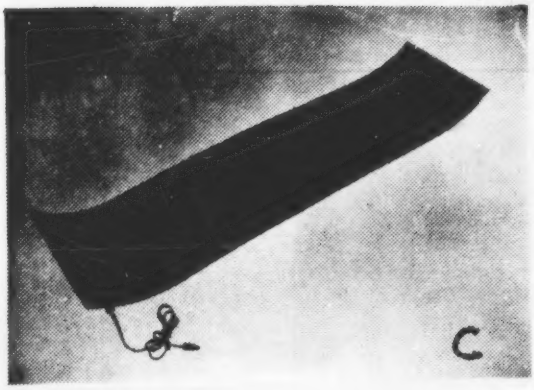
STEP 8 — This is a thermostatic control used to control the temperature of the propagation mat.

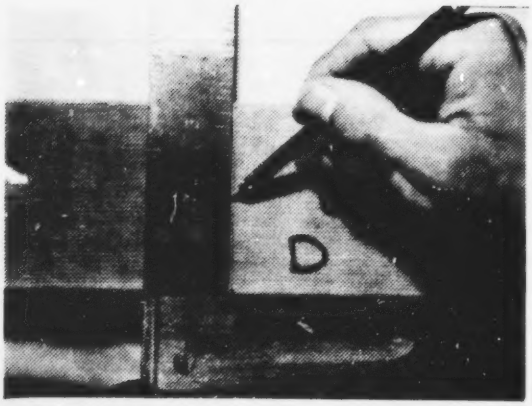
Check Point

Identify the proper tools and equipment on your worksheet.





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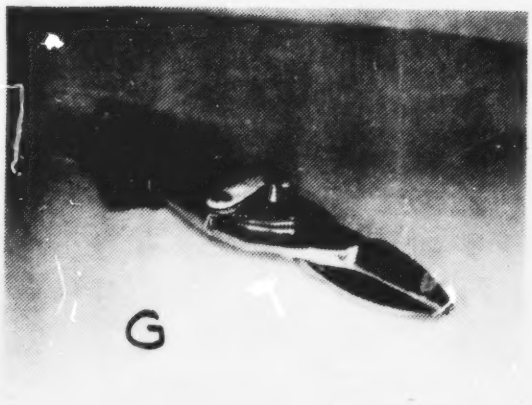
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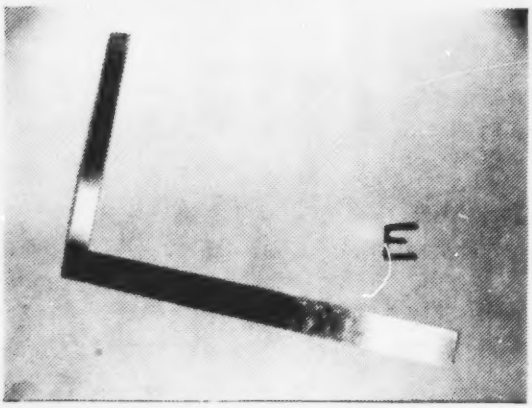
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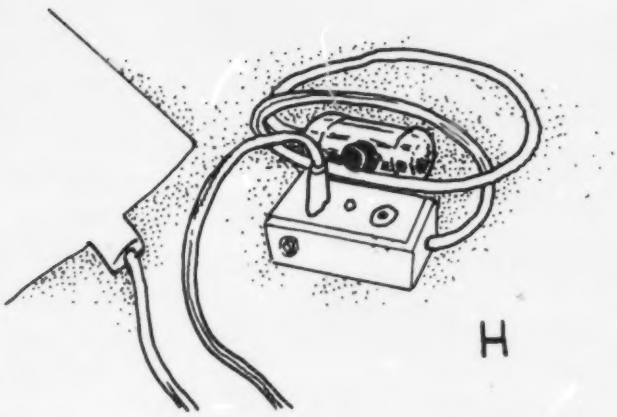
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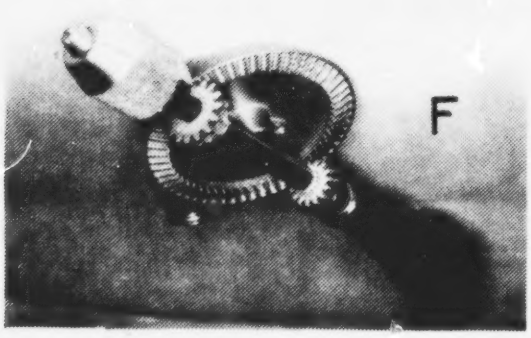
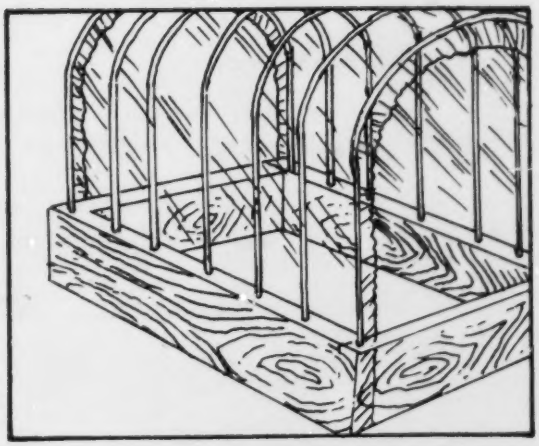
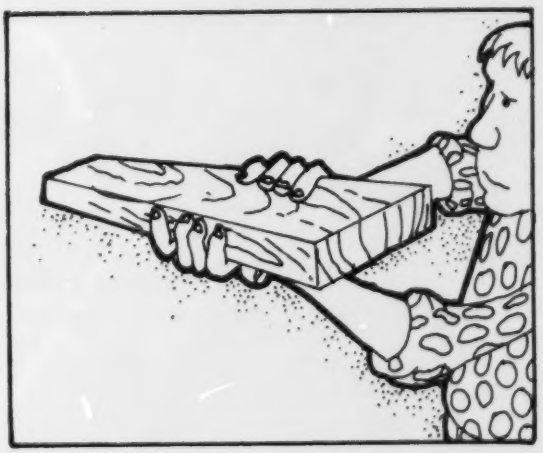

F

Instructional Objective II

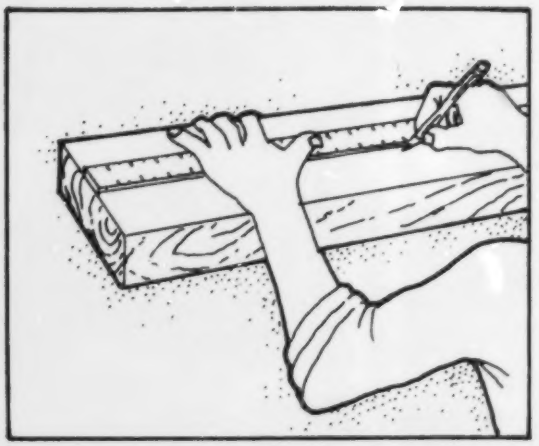
The student will cut four pieces of 2 x 4 in. board to assigned size (5.08 cm x 10.16 cm).



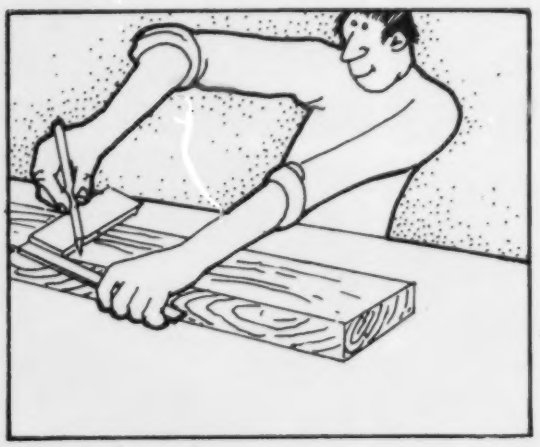
STEP 1 – First, see what the model greenhouse should look like upon completion. Review drawing given to you by your instructor.



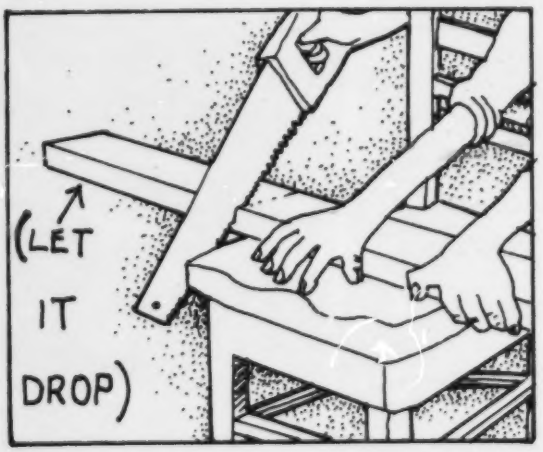
STEP 2 – Obtain a 2" x 4" and prepare to cut four pieces of wood.



STEP 3 – Measure 11" (27.9 cm) and place a mark on the 2" x 4".

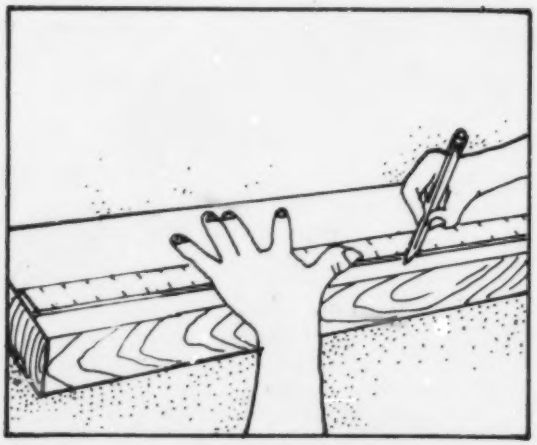


STEP 4 – Pick up the square and mark a line across the 2" x 4".

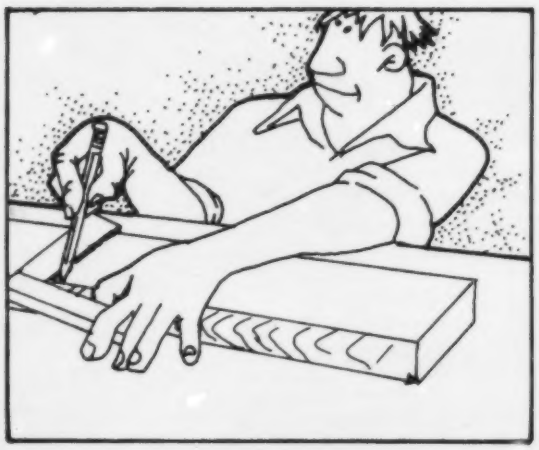


STEP 5 – While one student holds the board on a table or chair, the other student using the saw will cut off the 11" (27.9 cm) piece of wood.

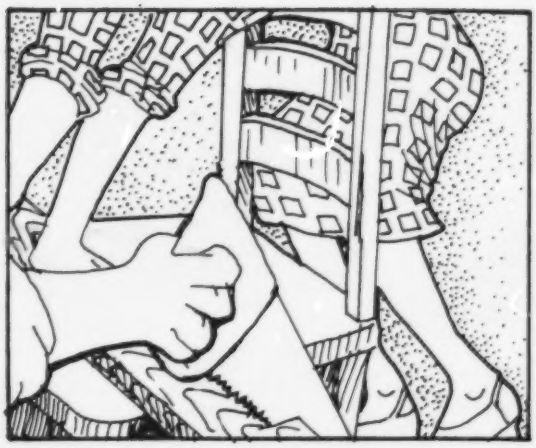
STEP 6 – Now cut another 11" (27.9 cm) board by the students reversing their positions and repeating steps 3, 4, and 5.



STEP 7 – The student will measure 18" (45.7 cm) on the 2" x 4" board.



STEP 8 – Pick up the square and mark a line across the 2" x 4".



STEP 9 – While one student holds the board on a table or chair, the other student will saw off the 18" (45.7 cm) piece of 2" x 4".

STEP 10 – Now cut another 18" (45.7 cm) board by the students reversing their positions and repeating steps 7, 8, and 9.

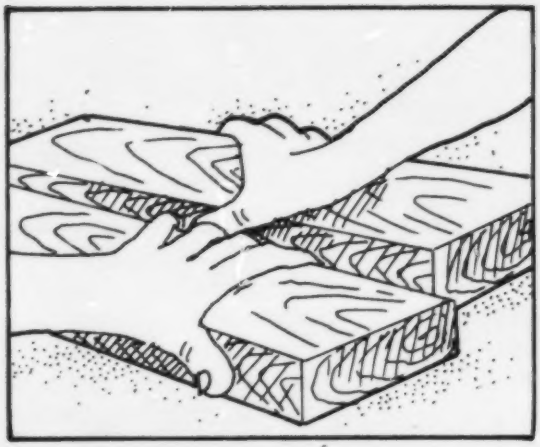
Check Point

Do you have two boards 11" (27.9 cm) long and two boards 18" (45.7 cm) long? If so, proceed with the next objective. If not, go to your instructor for help.

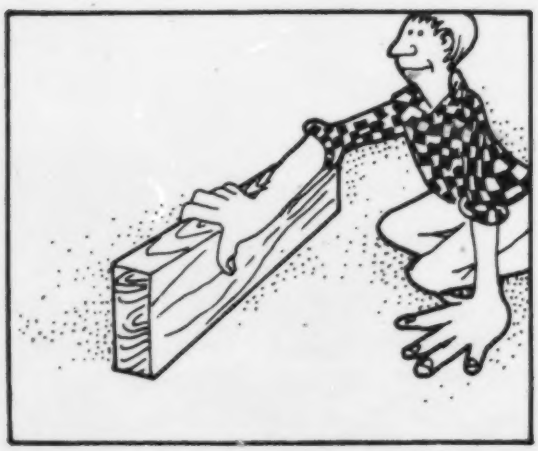
17

Instructional Objective III

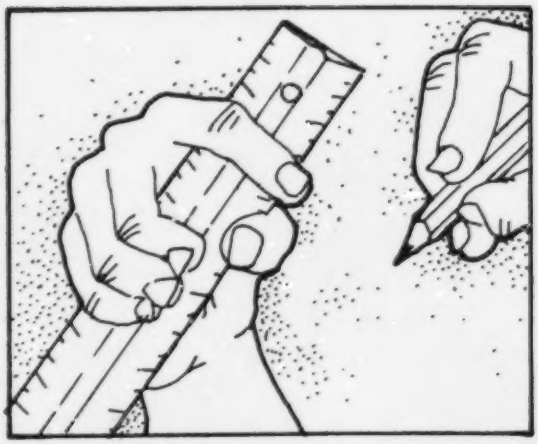
The student will measure, mark, and drill holes in the 18" (45.7 cm) boards for the greenhouse construction.



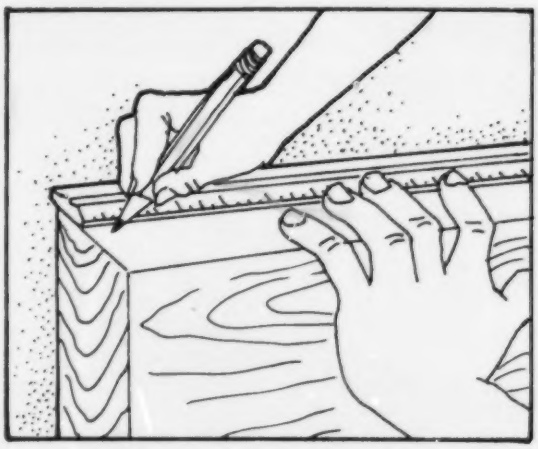
STEP 1 – Each student will pick up one of the 18" (45.7 cm) 2" x 4" boards.



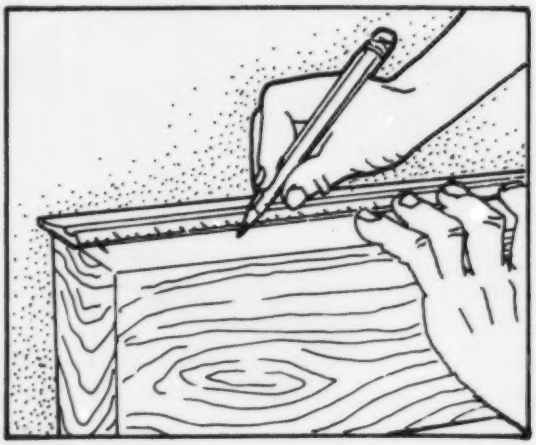
STEP 2 – Place these boards up on their edge lengthwise.



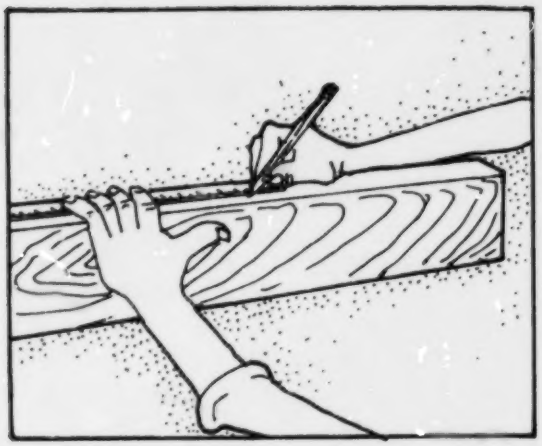
STEP 3 – Using a rule, measure and mark as follows:



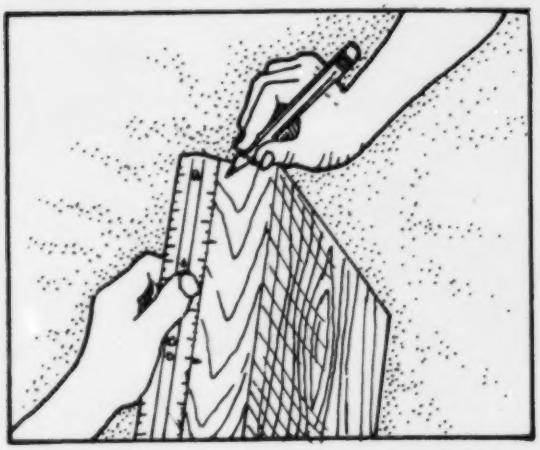
STEP 4 – ½" (1.27 cm) from the end



STEP 5 – From this mark, measure over 3" (7.6 cm).



STEP 6 – Do this four more times until there is 2½" (6.35 cm) left on the board.



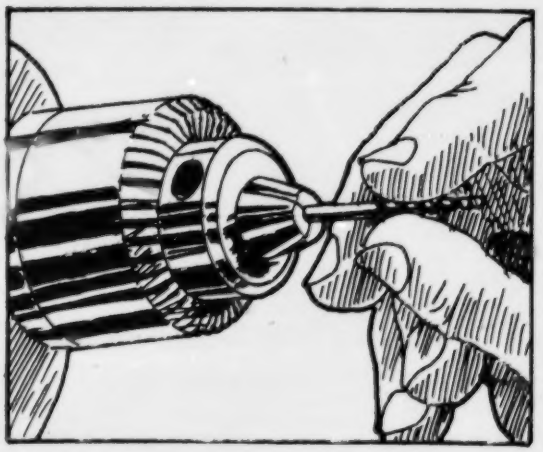
STEP 7 – Now measure over 2" (5.08 cm) from your last 3" (7.6 cm) mark. This mark should be ½" (1.27 cm) from the end of your board.

Check Point

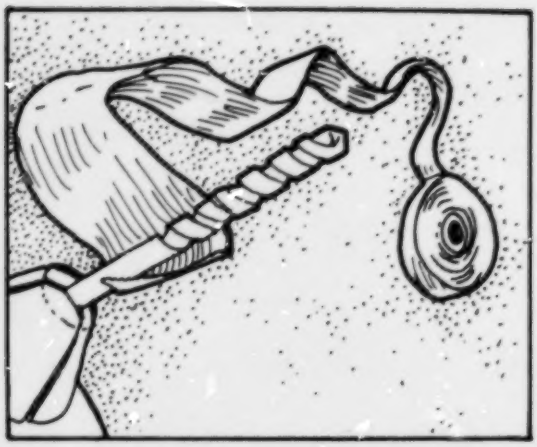
Do you have seven marks on the board? If so, proceed; if not, seek your instructor's help.

STEP 8 – One student should hold the 18" board upright with the marks facing up.

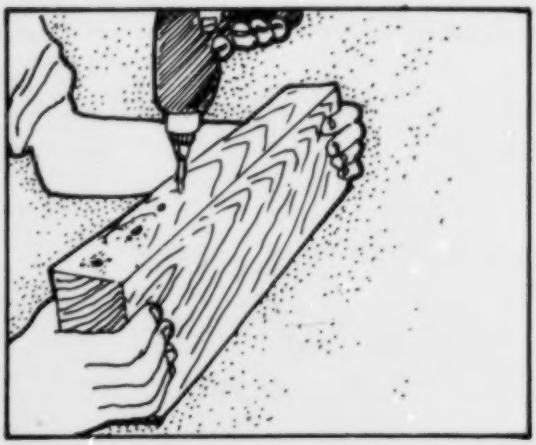
STEP 9 – The other student will pick up the hand drill.



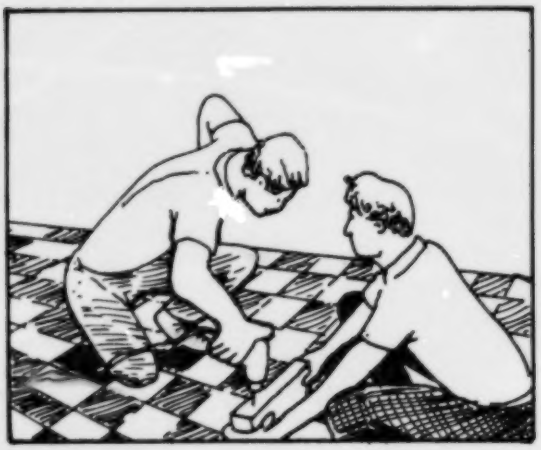
STEP 10 – Place the 1/16" drill bit in the drill and secure it in the chuck.



STEP 11 – Place a piece of tape ½" (1.27 cm) from the end of the bit.



STEP 12 – Drill holes in all seven marks on your board until the tape just touches the wood. This will make all the holes about ½" (1.27 cm) deep.



STEP 13 – Change places with your partner and do the other board, using steps 9, 10, 11, 12.

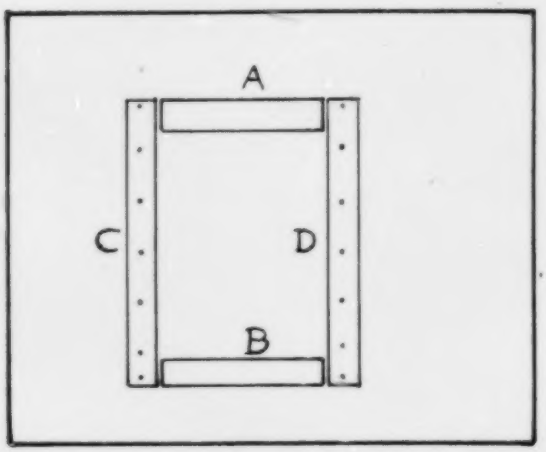
Check Point

Are all the holes drilled? Do both boards look uniform (the same)?

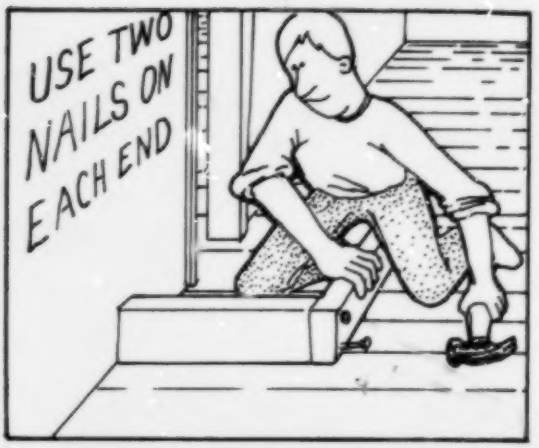
Instructional Objective IV

The students will assemble the base frame of the model greenhouse.

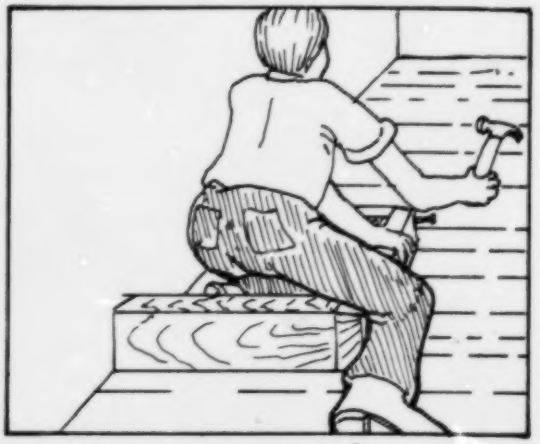
STEP 1 – Be sure the boards with drilled holes are up and all the holes line up with each other.



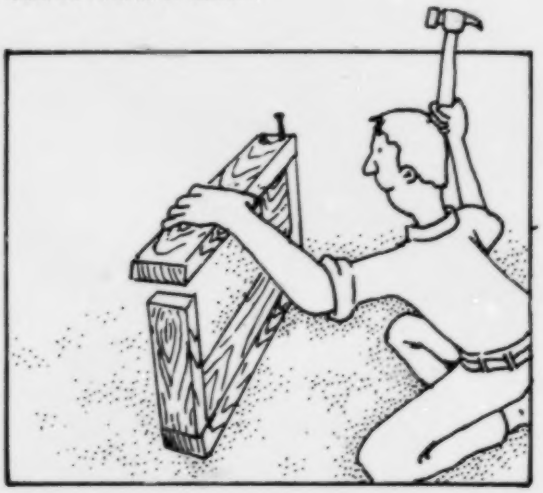
STEP 2 – Arrange boards so that boards A and B (11" = 27.9 cm) form back and front of rectangle, and boards C and D (18" = 45.7 cm) form the sides.



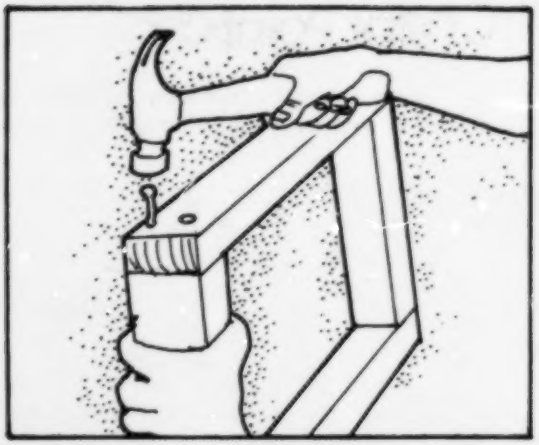
STEP 3 – Drive two nails where boards B and D touch, being sure nails penetrate both.



STEP 4 – Drive the nails in the corner where boards A and D touch.



STEP 5 – Drive two nails in opposite corner where boards A and C touch.



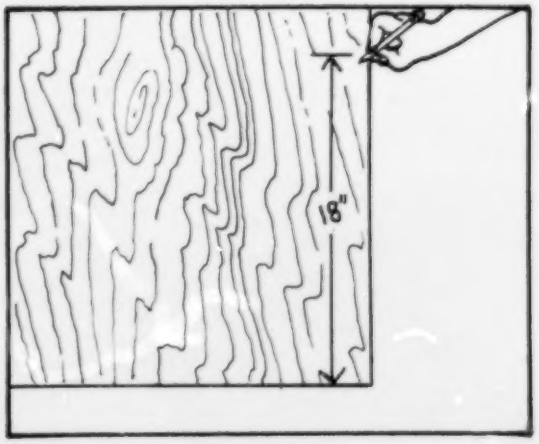
STEP 6 – Drive two nails where boards B and C touch, being sure nails penetrate both.

Check Point

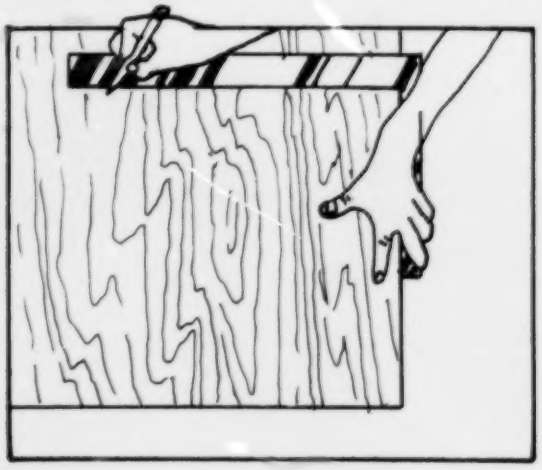
Students should now check to see if their boards look like those in handout 1. If so, proceed to the next objective.

Instructional Objective V

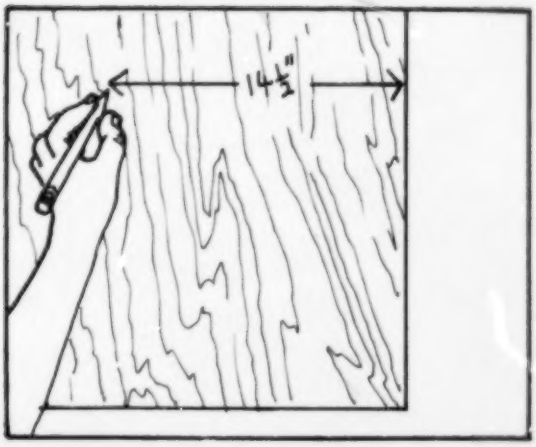
Students will measure and cut the base for the model greenhouse.



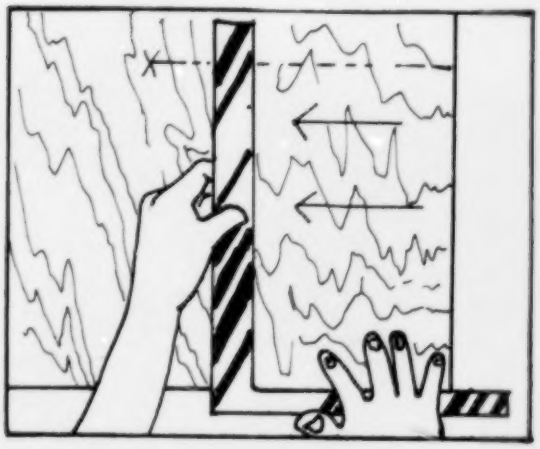
STEP 1 – Using your rule, measure and mark 18 in. (45.7 cm) along one side of the plywood for the base.



STEP 2 – Using a carpenter's square, keeping one edge against the wood, scribe a line across the wood at the 18" mark.



STEP 3 – On this line, measure 14½" (36.8 cm) and make a mark.

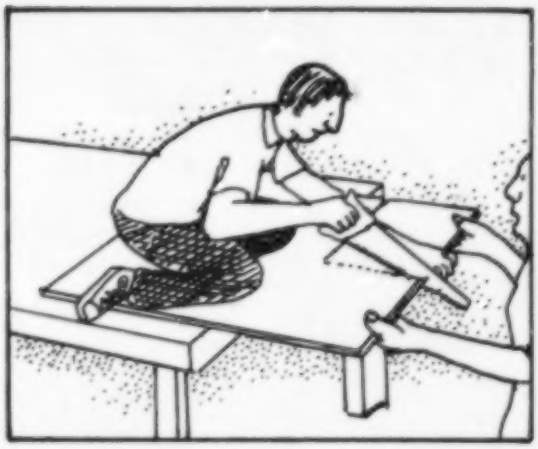


STEP 4 – Move the square to the side of the plywood and line the edge of the square even with the board.

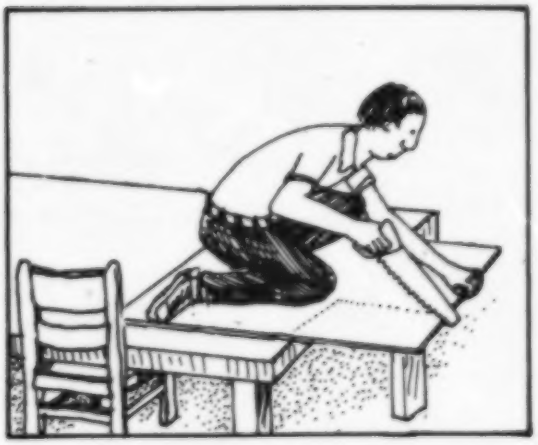
STEP 5 – Slide the square until the square touches the 14½" (36.8 cm) mark. Draw a line across the wood at this point.

Check Point

Have your partner check your measurements before you attempt to cut out the base.



STEP 6 – Have your partner hold the board securely. Use the handsaw to cut the wood along one of the lines.



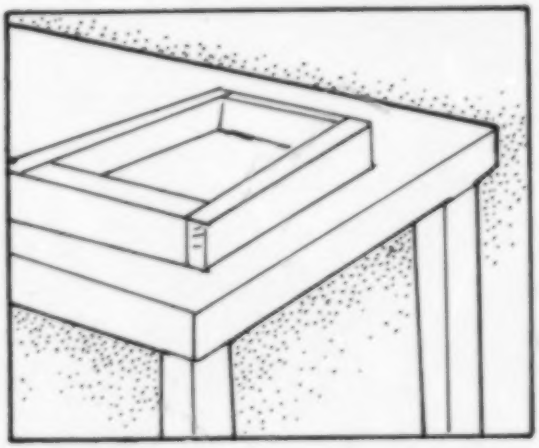
STEP 7 – When you have cut this portion, switch places and let your partner cut the other line.

Check Point

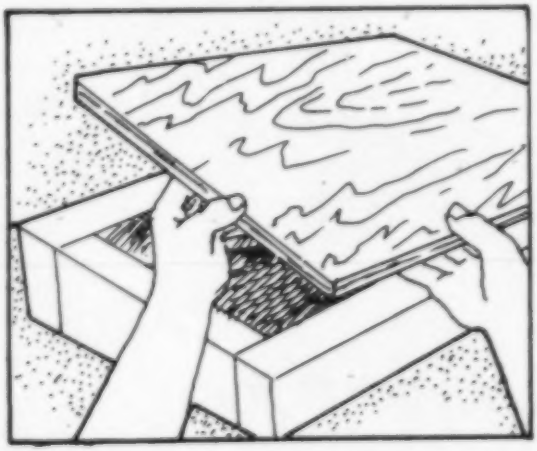
You should have a base section of wood 18" x 14½" (45.7 cm x 36.8 cm).

Instructional Objective VI

The students will attach the base to the frame of the greenhouse.



STEP 1 – Place frame on a table with the drilled side down.



STEP 2 – Place the base section 18" x 14½" on the frame. Be sure all the corners are square (even). (45.7 x 36.8 cm)

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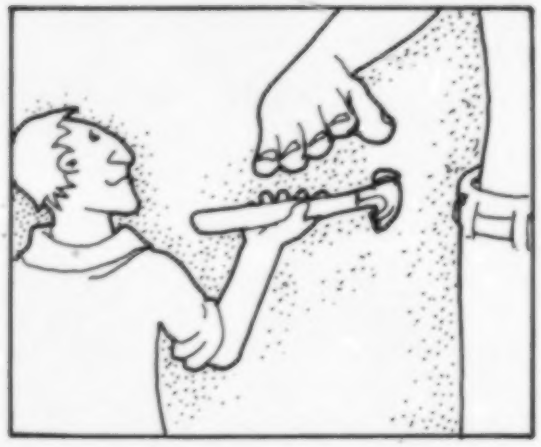
STEP 3 – Drive three nails on the long sides, then switch positions.



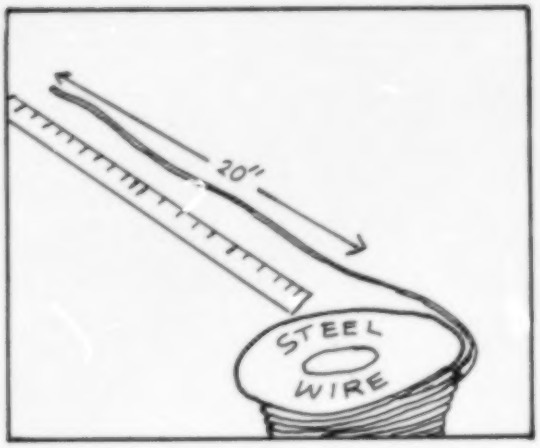
STEP 4 – The other student will drive two nails on the short side.

Check Point

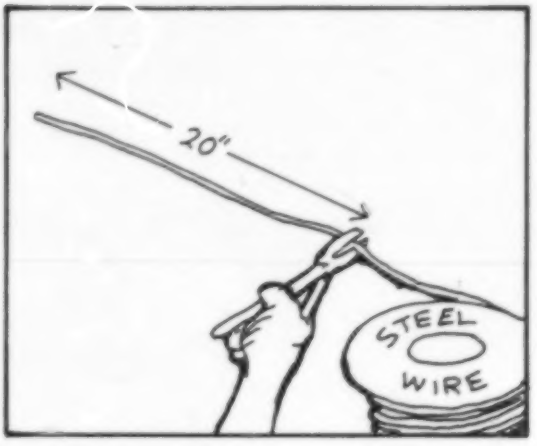
Is the base secured to the frame? If so, proceed to the next objective; if not, retrace your steps in the past objective.

Instructional Objective VII

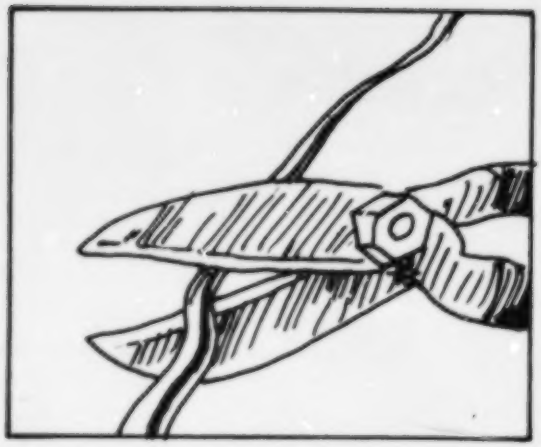
The student will cut seven pieces of 16 gauge steel wire 20" (50.8 cm) long.



STEP 1 – Using the rule, measure and mark 20" (50.8 cm) of steel wire.



STEP 2 – Using a pair of tinner's snips, cut the wire at the mark.



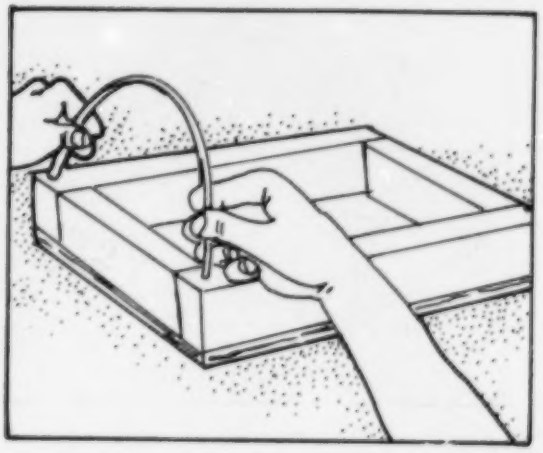
STEP 3 – Repeat steps 1 and 2 until you have seven pieces of wire.

Check Point

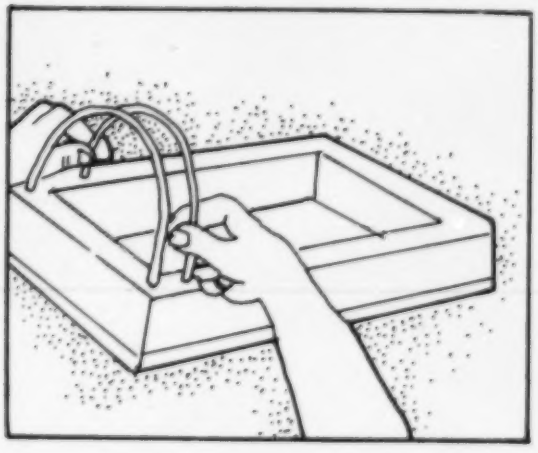
Lay all seven pieces of steel wire together. Are they all even? If so, proceed to the next objective. If not, replace any steel wire not uniform (the same) in size.

Instructional Objective VIII

The students will insert wire for the greenhouse frame.



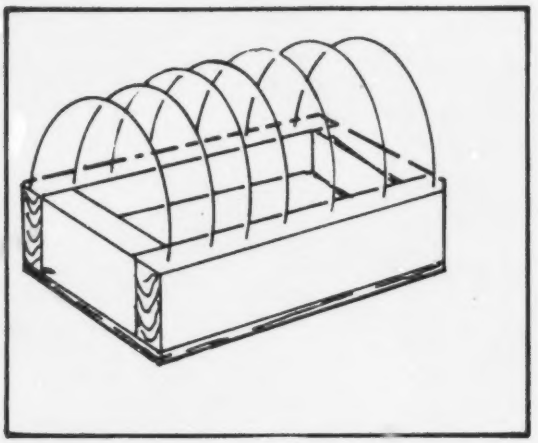
STEP 1 – Insert one end of one wire in first hole on side C and the other end of the wire in the first hole on side D.



STEP 2 – Repeat Step 1 moving to a new hole each time inserting a new piece of wire until all the wire is inserted and all the holes are filled.

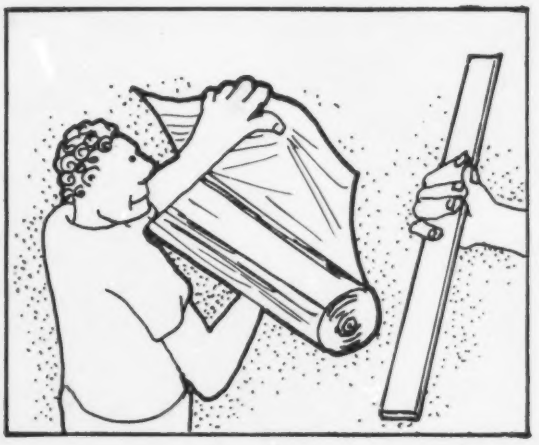
Check Point

Does your structure look similar to the one pictured?



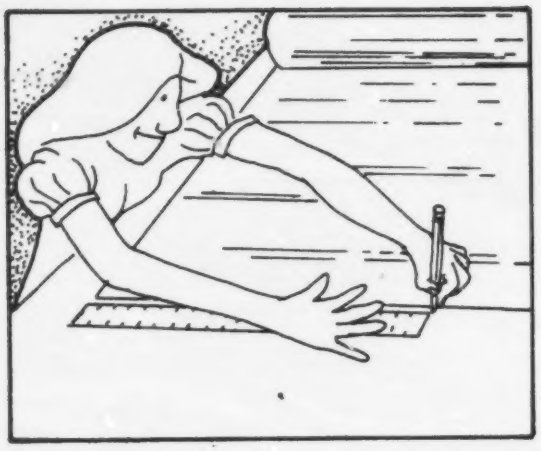
Instructional Objective IX

The students will measure and cut one square yard of plastic.

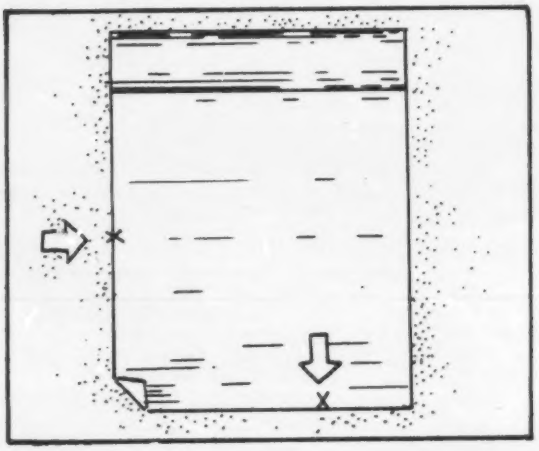


STEP 1 – Secure from your instructor clear plastic and a metal rule.

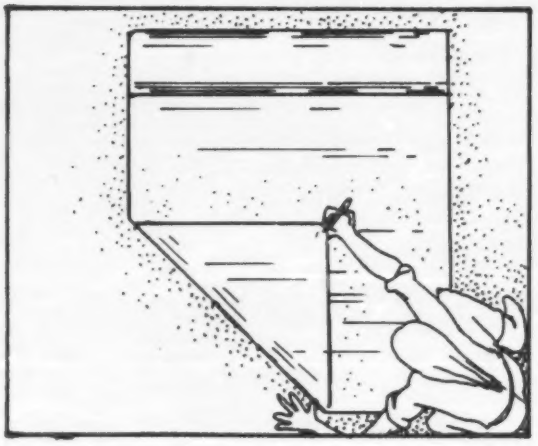
STEP 2 – Lay the plastic flat. Measure and mark 36" (91.4 cm) along one side of plastic.



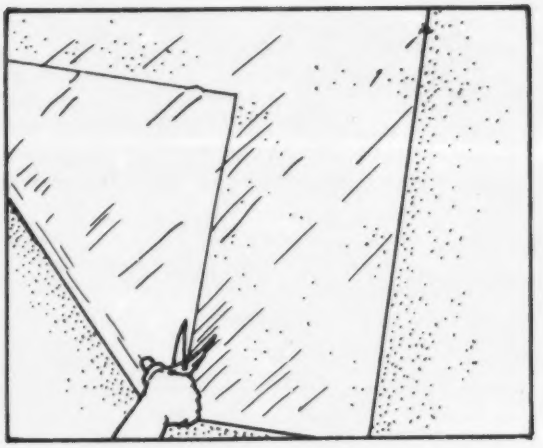
STEP 3 – Measure and mark 36" (91.4 cm) along the adjacent side of the plastic.



STEP 4 – Fold the sheet of plastic at these two marks.



STEP 5 – Where the point of this triangular-shaped plastic touches the remainder of the plastic is the corner of the square yard of plastic. Mark this point.



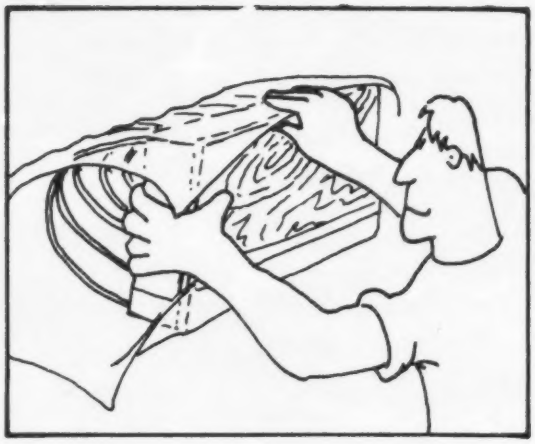
STEP 6 – With the plastic still folded, cut along both 36" (91.4 cm) sides until this piece is free from the rest of the plastic.

Check Point

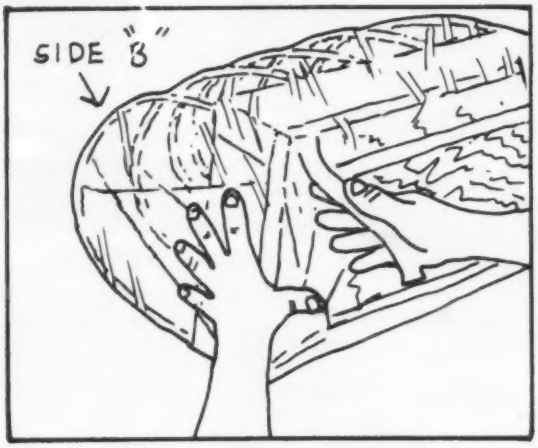
Re-measure the piece of plastic. It should be 36" (91.4 cm) on all four sides.

Instructional Objective X

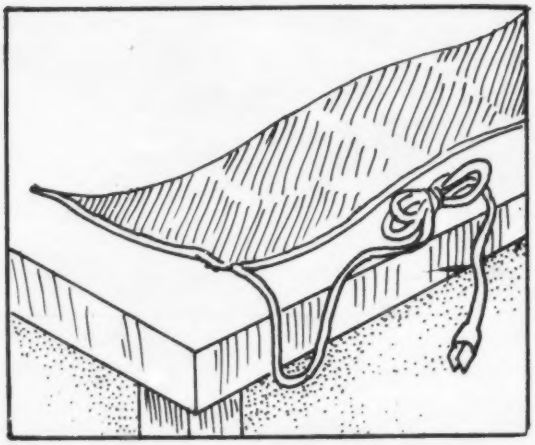
The student will secure the plastic to the frame by using masking tape to hold the plastic in place.



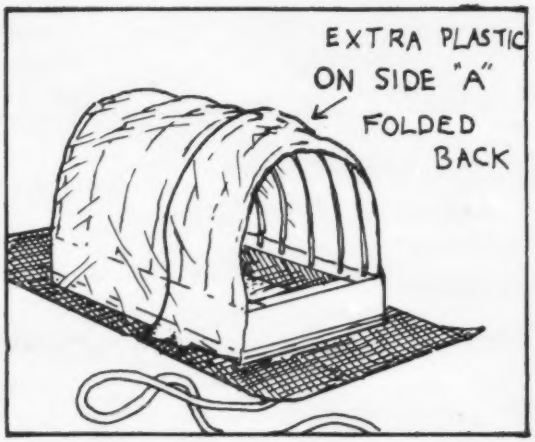
STEP 1 – Tape the outer edges of 36" x 36" (91.4 cm) plastic under sides C and D of greenhouse.



STEP 2 – Tape plastic under the back (side B), leaving the model greenhouse with plastic open on side A.



STEP 3 – Obtain the propagation mat. Lay the mat flat on the table where the greenhouse is to be set up.



STEP 4 – Place the model greenhouse on top of the propagation mat.

Check Point

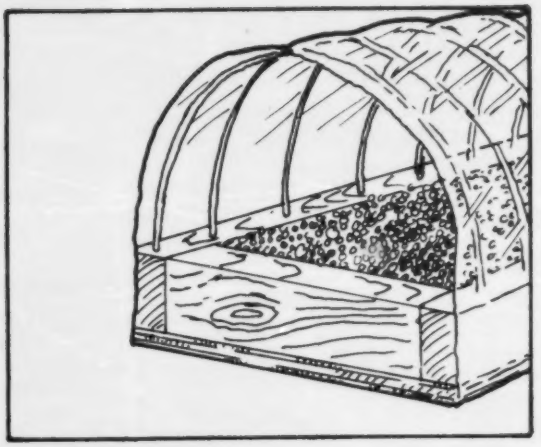
Is the plastic tucked under all three sides?

Instructional Objective XI

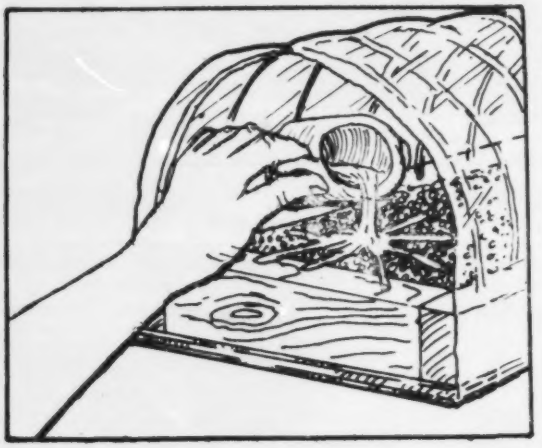
The students will now prepare the soil for planting.

STEP 1 – Get a bag of soil and a plastic cup from your instructor.

STEP 2 – Open the bag and with the cup dip out soil contents. Put it in the opening on side A of the greenhouse.



STEP 3 – Continue to fill until soil level reaches top of board used to make frame.



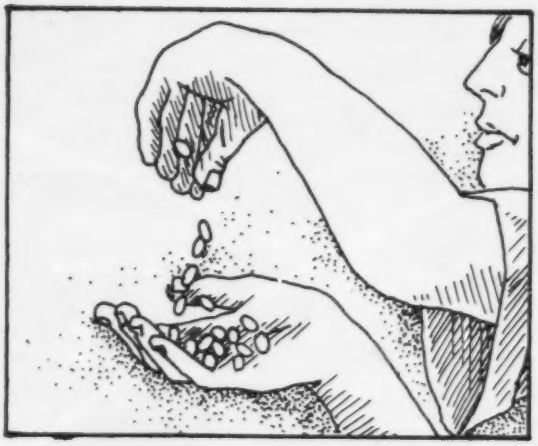
STEP 4 – Take the same cup and fill it with faucet water. This water should be poured over the soil contents of model greenhouse. Repeat this as many times as necessary to dampen soil area in model greenhouse.

Check Point

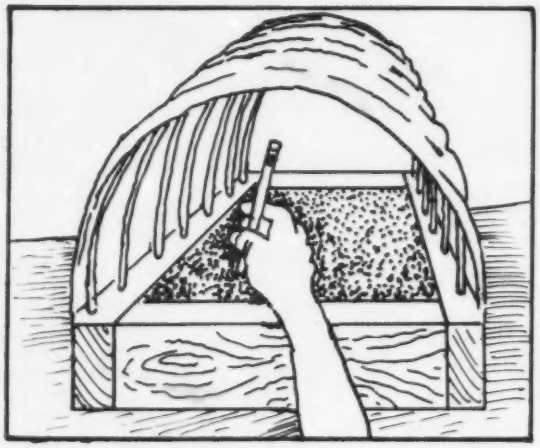
The soil should be moist – not too wet or too dry.

Instructional Objective XII

The students will plant 15 seeds in their greenhouses.

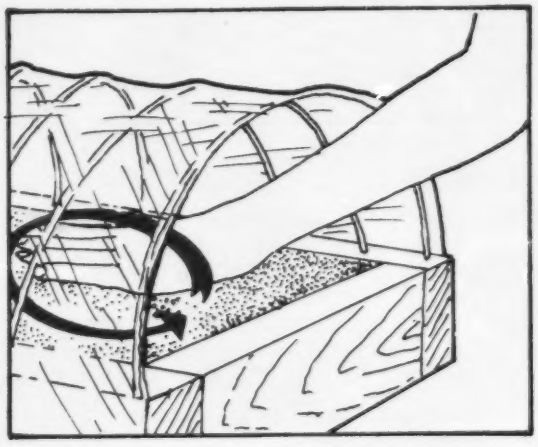


STEP 1 – Each student should obtain 15 seeds to be planted.



STEP 2 – Take a pencil, your finger, or a similar round object and punch fifteen ½" (1.27 cm) holes into soil in model greenhouse. Be sure the holes are evenly distributed within the greenhouse.

STEP 3 – Insert one seed in each hole.



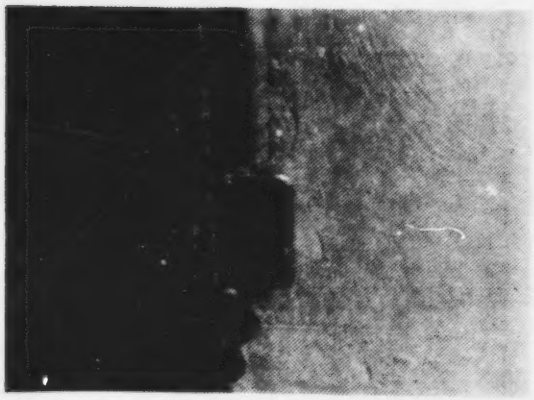
STEP 4 – With your hand, gently smooth soil on top of seeds in a rotating manner.

Check Point

Are all of your holes covered with soil?

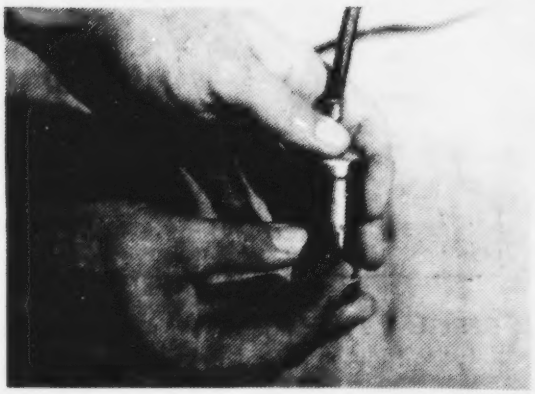
Instructional Objective XIII

The students will now plug in and control the growth temperature of the greenhouse.

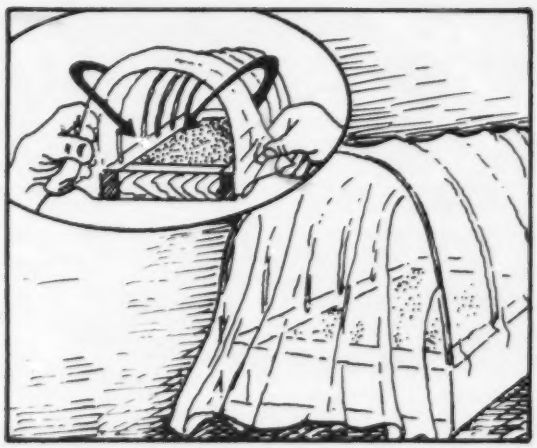


STEP 1 – Plug cord of thermostatic control box into a 110 volt wall receptacle.

STEP 2 – Move the control box receptacle close enough to plug the mat into it.



STEP 3 – Turn the temperature dial to the high position.



STEP 4 – Fold down the plastic on side A of model greenhouse. Do not try to tuck under as you did the other side.

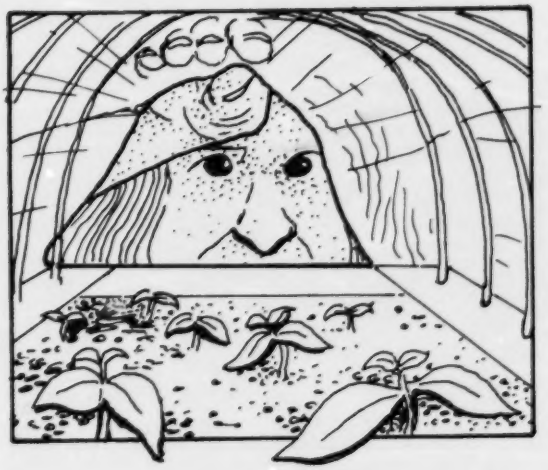
STEP 5 – Water model greenhouse, using cup filled with water, about every three days.

Check Point

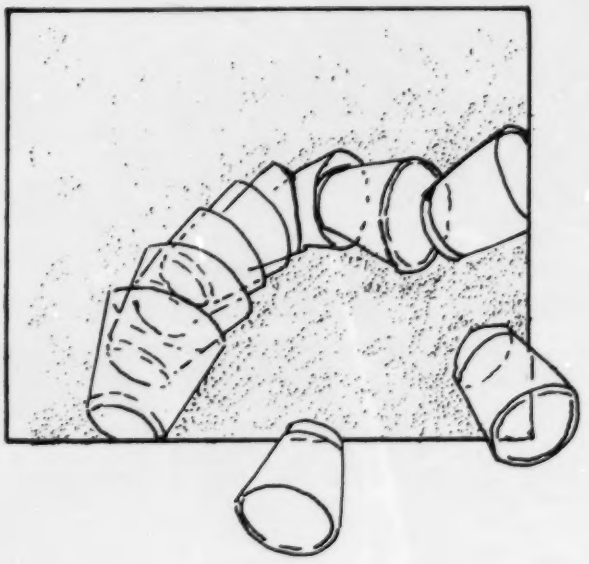
You should observe that in 10 to 20 days, depending on seed planted, the plant will start to emerge from soil. When plants start up, continue watering as designated in the watering cycle (step 5) until your plants are ready for distribution.

Instructional Objective XIV

The students will transplant their plants either outside in gardens or as house plants.



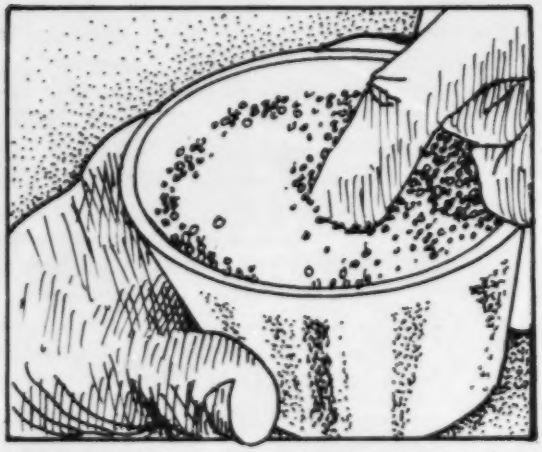
STEP 1 – Plants are ready for transplanting upon the development of the leaves on the new plants.



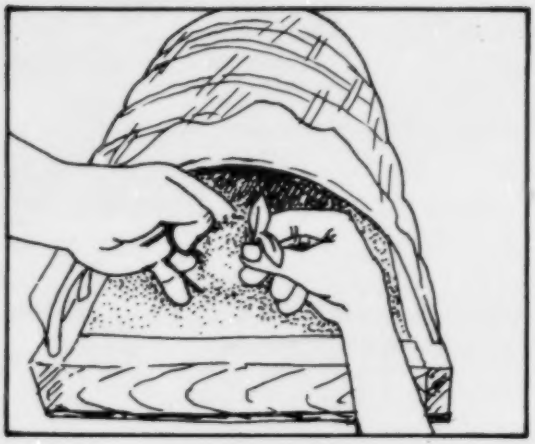
STEP 2 – Obtain 15 plastic cups.

STEP 3 – Half fill the cups with soil from same bag used to fill model greenhouse.

STEP 4 – Soak soil with water.



STEP 5 – Use your finger or some other round object to make holes in the center of the pots.



STEP 6 – Remove plant from model greenhouse. Gently force fingers down under plant and lift it being careful not to bruise the plant.

STEP 7 – Insert plant in hole in the middle of the pot and pack soil around it firmly.

STEP 8 – Water plant again thoroughly after transplanting.

Check Point

Have your instructor examine your plants before leaving with them.

OCCUPATIONAL DESCRIPTIONS

402.161-010 FARMER, VEGETABLE (agric.) garden farmer; vegetable grower.

Raises vegetables: Determines kind and amount of crop to be grown, according to market conditions, weather, and size and location of farm. Selects and purchases seed, fertilizer, and farm machinery and arranges with buyers for sale of crop. Hires and directs farm workers engaged in planting, cultivating, and harvesting crop, such as beans, onions, and peas. Performs various duties of farm workers, depending on size and nature of farm, including setting up and operating farm machinery. May grow vegetables in greenhouse to produce out-of-season crops. May grow a variety of vegetables and be designated as TRUCK FARMER (agric.). May specialize in growing a single vegetable and be designated by the name of the vegetable, as ONION FARMER (agric.).

402.663-010 FARMWORKER, VEGETABLE (agric.) I

Drives and operates farm machinery to plant, cultivate, and harvest vegetables, such as peas, lettuce, tomatoes, and lima beans: Attaches farm implements, such as plow, planter, fertilizer applicator, and harvester, to tractor and drives tractor in fields to prepare soil and plant, fertilize, and harvest crops. Thins, hoes, and weeds row crops, using hand implements. Irrigates land to provide sufficient moisture for crop growth, using irrigation method appropriate to crop or locality. May mix spray solutions and spray crops. May supervise seasonal workers and keep time records of workers. May use horse-drawn equipment to plant, cultivate, and harvest crops. May adjust and maintain farm machinery. May be identified with crop raised.

405.161-018 HORTICULTURAL-SPECIALTY GROWER, INSIDE (agric.).

Grows horticultural-specialty products and crops, such as flowers, ornamental plants, and vegetables, under environmentally-controlled conditions, applying knowledge of plant culture, environmental-control systems and structures, and market conditions: Determines types and quantities of plantings to grow; allocates space in structure, such as greenhouse or shed; and schedules growing activities. Plants seeds and transplants seedlings in material, such as bark, gravel, heated water, sandy soil, and stable straw to propagate seeds and nursery stock. Removes substandard plants to maintain quality control, prunes plants to enhance development, and positions plants to artistically display products. Monitors timing and metering devices that control frequency, amount, and type of nutrient applications; regulate humidity, ventilation, and carbon dioxide conditions; and dispense herbicides, fungicides, and pesticides. Explains and demonstrates care-taking techniques to subordinates. May assign their duties. May hire workers. May maintain personnel and production records. May deal with vendors to purchase supplies and materials, and arrange with customers to sell products and crops. May be identified with crop as BEAN-SPROUT GROWER (agric.); MUSHROOM GROWER (agric.); ORCHID GROWER (agric.); or technique as HYDROPONICS GROWER (agric.).

405.361-010 PLANT PROPAGATOR (agric.)

Propagates plants, such as orchids and rhododendrons, applying knowledge of environmental controls and plant culture: Confers with management personnel to ascertain type and number of species to propagate and specifications. Selects materials according to kind of plant; mixes growth media; and prepares containers, such as jars, pots, and trays. Initiates new plant growth using methods, such as following: (1) Cuts leaves, stems, or rhizomes from parent plant and places cuttings in growth media. (2) Bends, covers or buries branches or parent plant in soil, securing branches with pegs or rocks. (3) Wounds stems of parent plant, using sharp knife, inserts pebble into wound, and binds wound with moss, burlap or raffia. (4) Plants meristem and seeds in growth media. (5) Breaks off or cuts apart and plants roots, crowns and tubers from parent plant. Inspects growing area to ascertain temperature and humidity conditions, and regulates systems of heaters, fans, and

sprayers to insure conformance with specifications. Gives transplanting and cultivation instructions to coworkers, and monitors activities or divide developing plants to promote altered growth characteristics. May log activities, maintain propagation records, and compile periodic reports.

405.684-014 HORTICULTURAL WORKER (agric.) I

Plants, cultivates, and harvests horticultural specialties, such as flowers and shrubs, and performs related duties in environmentally-controlled structure applying knowledge of environmental systems: Ascertains growing schedules and deviations from established procedures from grower or manager. Sows seed and plants cuttings. Looks at and feels leaf texture, bloom development, and soil condition to determine nutrient and moisture requirements and to detect and identify germ and pest infestations. Sets fertilizer timing and metering devices that control frequency and amount of nutrients to be introduced into irrigation system. Applies herbicides, fungicides, and pesticides to destroy undesirable growth and pests, using spray wand connected to solution tank. Reads and interprets sensing indicators and regulates humidity, ventilation, and carbon dioxide systems to control environmental conditions. Grafts scions to seedling stock. Pollinates, prunes, transplants, and pinches plants, and culls flowers, branches, fruit, and plants to insure development of marketable products. Harvests, packs, and stores crop, using techniques appropriate for individual horticultural specialty. May maintain and repair hydroponic and environmental control systems. May maintain and repair structures, using materials, such as corrugated fiberglass panels, lath, glass panes, and putty, and tools, such as hammer, saw, and putty knife. May be designated according to work location as GREENHOUSE WORKER (agric.); according to techniques employed as HYDROPONICS WORKER (agric); or according to horticultural specialty as ORCHID WORKER (agric.).